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PERSPECTIVES OF DEVELOPMENT OF SWITCHING MACHINES

Today, switching equipment is widely used in high-voltage technology. Various types of switches, short circuits, contactors, etc. are belonged to it. The main task of switching devices is switching the electrical circuit and removing the voltage from a part of the electrical installation.

Switches are most common switching devices. In large-scale industries, reusable switches for voltages over 110 kV are quite popular. The significant drawback of these switches is origination of arcs. For the reason of need to make a large number of arc breaks of 55–110 kV per break, modern air circuit breakers are cumbersome, difficult to control and not enough reliable. Therefore, the main task is to reduce the number of arc breaks through voltage increase per one break to 300 - 350 kV. This will help to create switches smaller in size due to the less number of arc breaks. For mass production of this kind of equipment we need to use new technologies. New composite materials should be used to create arc chambers and related components.

The creation of self-guided equipment is an important trend to improve switching devices. An example of such equipment today is a circuit breaker. The most common in the home are mechanical automatic switches. Such switching contact devices are unreliable in conditions of large-scale production, therefore it is reasonable to use electronic ones in enterprises. The use of IT and microprocessor technologies contributes to the development of this equipment.

The development of switching installations using superconducting materials is very promising. With their help it is possible to significantly reduce the requirements for the breaking capacity of switches. But because of the high cost of superconductors it is reasonable to use old technologies. Today the development is

underway aimed at reducing the cost of these materials for greater availability in the manufacture of switching devices.

Based on the above, we can conclude that the use of IT technologies, composite and superconducting materials for the manufacture of switching installations helps eliminate many of the shortcomings and improve the properties of modern switching devices.